

REMARKS

This Amendment After Final responds completely to the outstanding Office Action mailed October 7, 2004. No claims have been amended. No new matter has been added.

A Notice of Appeal accompanies this Amendment After Final.

Response To Rejections Under 35 USC § 102

Claims 1-5 were rejected under 35 USC § 102(b) as anticipated by US Patent No. 5,602,896, to Diepstraten. The Examiner asserts that Diepstraten discloses a device for forming an image from a plurality of sub-images, comprising a single-surface detector, which detector includes a plurality of sensor elements for generating image data, said sensor elements arranged in groups for forming a plurality of sub-areas sub areas (T₁ to T_n) of the images, where each sub-image corresponds to each sub-area (col. 5, lines 45-57, the first and second sub-images are used).

Applicants respectfully disagree that Diepstraten anticipates its claims 1-5

Applicants' independent claims essentially set forth methods, apparatus, or computer programs which all utilize a single flat dynamic X-ray detector for the correction of images that contain defects. Such X-ray detectors are used for X-ray examination apparatus in the medical diagnostic field, where it is very important that the images produced are free from artefacts to a high degree. Known dynamic X-ray detectors are subdivided into a plurality of sub-areas, a respective read-out unit being used for each sub-area. Each sub-area comprises a plurality of image areas. A read-out unit amplifies the detected signals or image data of a sub-area; one read-out unit then reads the plurality of image areas of a sub-area. Neighboring image areas that are situated at the edge of adjoining sub-areas, therefore, are read out by different read-out units. The inherently different amplification behavior of such different read-out units gives rise to abrupt gray scale transitions between such neighboring image areas. Such abrupt gray scale transitions appear as stripes in the image to be formed.

Applicants' independent claim 1 sets forth a device for forming an image, which comprises a plurality of sub images. The device includes a single-surface detector with a plurality of sensor elements for generating image data, which are arranged in groups to form a plurality of sub-areas (T₁ to T_N), where each sub-image corresponds to each sub-area, read-out units (V₁ to V_N) which are associated with the sub-areas (T₁ to T_N) of the image, an analysis unit arranged to evaluate image

data from adjoining image areas (S_{63} and S_{66}) of neighboring sub-areas (T_1 and T_2) and to generate correction data, and a correction unit arranged to correct incorrect image data by means of correction data.

Applicants have carefully reviewed Diepstraten's figures, and its text at col. 5, lines 45-57 but do see any disclosure or teaching of a single-surface detector, or a single-surface flat dynamic detector for generating sub-images.

Accordingly, independent claims 1 is not anticipated by Diepstraten under 35 USC § 102, and applicants respectfully request withdrawal of the rejection to independent claim 1. Furthermore, because dependent claims 2-5 depend from said patentable independent claim 1, applicants respectfully assert that those dependent claims are also patentable under § 102 in view of Diepstraten for at least the reasons set forth for the patentability of independent claim 1, and accordingly request withdrawal of the rejections of same.

Response To Rejections Under 35 USC § 103

Claims 6-7 were rejected under 35 USC § 103(a) as obvious by Diepstraten in view of US Patent No. 5,946,407, to Bamberger. The Examiner asserts, with respect to claim 6, that Diepstraten is silent about cumulative histograms, Bamberger teaches that cumulative histograms are logarithmic the look up table which transforms the gray level values of digital image in the region of interest (col. 10, lines 39-50), and that it would have been obvious to modify Diepstraten's sub-image invention according to the teaching of Bamberger because Bamberger provides a plurality of image enhancement features including gray scale stretching, contrast enhancement based on histogram equalization which improves visualization of suspected lesions and cost and risks of more tests which may be implemented by x-ray. With respect to claim 7, the Examiner asserts that Diepstraten teaches a histogram generator arranged to receive image data and to generate histograms over a selectable period of time (col. 3, lines 65 through col. 4, line 8, correction of brightness in short period of time) and that claim 16 recites similar limitations as did claims 1 and 6.

Applicants respectfully disagree. Where an invention is contended to be obvious based on a combination of elements across different references, the law requires that there be a suggestion, motivation or teaching to those skilled in the art for such a combination. In Re Fine, 737 F.2d 1071, 1074 (Fed. Cir. 1988). No motivation or suggestion found in either Diepstraten or Bamberger for

combining the references. Moreover, even were such motivation found (arguendo), combining the two references would still not realize the inventions set forth in claims 6 and 7 unpatentable under 103(a) for at least the following reasons.

Bamberger teaches a method and system for diagnosing living tissue, where a diagnostician may view digitized images of the tissue. The Bamberger user selects desired portions of an image and enhances same by use of an image enhancement feature. The image enhancement features include any combination of gray scale stretching, contrast enhancement based on logarithmic histogram equalization, spot enhancement and magnification.

Bamberger is not directed to forming an image, which comprises a plurality of sub images. The device includes a detector with a plurality of sensor elements for generating image data, which are arranged in groups to form a plurality of sub-areas (T_1 to T_N), where each sub-image corresponds to each sub-area, read-out units (V_1 to V_N) which are associated with the sub-areas (T_1 to T_N) of the image, an analysis unit arranged to evaluate image data from adjoining image areas (S_{63} and S_{66}) of neighboring sub-areas (T_1 and T_2) and to generate correction data, and a correction unit arranged to correct incorrect image data by means of correction data, as is applicants' independent claims.

Accordingly, combining Bamberger with Diepstraten does not realize an invention such as those set forth in applicants' claims 6 and 7 for at least the reasons set forth above with respect to the patentability of the independent claim 1 in view of Diepstraten, under 102(b). Accordingly, applicants respectfully request that the rejection of claims 6, 7 under 103(a) be withdrawn.

Claims 10, 12-13 and 15-18 were rejected under 35 USC § 103(a) as obvious by Diepstraten in view of US Patent No. 6,163,029 to Yamada, et al. The Examiner asserts, with respect to claim 10, that Diepstraten fails to teach a flat dynamic x-ray detector, but Yamada teaches a solid flat panel detector, and that it would be obvious to modify Diepstraten according to Yamada, with respect to claim 12, that Diepstraten discloses the claim 10 method, regarding claim 17 that Diepstraten discloses a flat dynamic x-ray detector, regarding claims 13 and 16, that the argument for claims 6, 10 and 12 applies, and with regard to claims 15 and 18, the argument with respect to claims 6 and 17 applies.

Applicants respectfully disagree. Where an invention is contended to be obvious based on a combination of elements across different references, the law requires that there be a suggestion,

motivation or teaching to those skilled in the art for such a combination. In Re Fine, 737 F.2d 1071, 1074 (Fed. Cir. 1988). No motivation or teaching is found in either reference to modify Diepstraten in accordance with Yamada. Moreover, even were such motivation found (arguendo), combining the two references would still not realize the inventions set forth in claims 10, 12-13 and 15-18 for at least at the reasons set forth above with respect to the patentability of the independent claim 1 in view of Diepstraten, under 102(b). Accordingly, applicants respectfully request that the rejection of claims 10, 12, 13 and 15-18 under 103(a) be withdrawn.

In conclusion, applicants request allowance of claims 1-7, 10, 12, 13 and 15-18, over the art of record, and passage to issue of this application including all of pending claims 1-18.

Respectfully submitted,

By 

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